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## Sexually Transmitted Diseases

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Disease (Synonym[s])	Etiology	Clinical Features	Laboratory Diagnosis	Treatment	Other Features
Chancroid (soft chancre, ulcus molle)	<i>Haemophilus ducreyi</i>	Incubation period: 3–7 d; erythematous papule, pustule, and then painful ulcer on the internal and/or external surface of the prepuce, coronal sulcus, or around the frenulum in men; introital and/or perianal area or on the cervix or vaginal wall in women; painful inguinal lymphadenitis, usually unilateral	Small gram-negative bacilli (school of fish pattern); isolation in culture (not available commercially)	Oral azithromycin 1 g SD; IM ceftriaxone 250 mg SD; oral ciprofloxacin 500 mg twice daily for 3 d; oral erythromycin base 500 mg 4 times daily for 7 d	Prevalent in promiscuous high-risk groups; enhances HIV transmission; coinfection with syphilis or herpes simplex virus is possible
Congenital syphilis	<i>Treponema pallidum</i>	Marasmic syphilis, snuffles, perioral/perianal fissures, lymphadenitis; late congenital syphilis: Hutchinson teeth, interstitial keratitis	19S antibodies on chromatography, FTA-Abs 19S IgM test, and IgM ELISA	Aqueous crystalline penicillin G 100,000–150,000 U/kg daily administered as 50,000 U/kg IV dose every 12 h during the first 7 d of life and every 8 h thereafter for a total of 10 d; procaine penicillin G 50,000 U/kg IM in a single daily dose for 10 d	
Gonorrhea	<i>Neisseria gonorrhoeae</i>	Incubation period: 1–14 d; dysuria, urethral purulent discharge; vaginal discharge, intermenstrual bleeding, menorrhagia, and inflammation of the Bartholin glands in women; primary site in women is the endocervical canal; 10% of men and 50% of women are asymptomatic; complications in men include gonococcal pyoderma, epididymitis, prostatitis, and seminal vesiculitis; urethral colonization occurs in 70%–90% of women infected with gonorrhea; acute salpingitis and pelvic inflammatory disease occur in 10%–20% of women; extragenital gonorrhea: oropharyngeal gonorrhea, rectal gonorrhea (anal intercourse), gonorrheal ophthalmia (blindness); disseminated gonococcal infection: arthritis-dermatitis syndrome, gonococcal endocarditis, meningitis; ophthalmia neonatorum: inoculation during vaginal delivery, purulent conjunctivitis	Gram or methylene blue staining (gram-negative diplococci in PMNs); culture: antibiotic-containing selective media (Thayer-Martin medium); nonamplified DNA probe test (hybridization of gonococcal RNA); nucleic acid amplification assays for chlamydial and gonococcal infections	Dual treatment with IM ceftriaxone 250 mg SD and oral azithromycin 1 g SD (recommended by CDC as first-line treatment); IM ceftriaxone 250 mg SD; ophthalmia neonatorum: IV ceftriaxone 25–50 mg/kg SD	Preventive strategies for ophthalmia neonatorum include topical silver nitrate and other antimicrobial eye drops; facilitates HIV transmission

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Disease (Synonym[s])	Etiology	Clinical Features	Laboratory Diagnosis	Treatment	Other Features
Granuloma inguinale (donovanosis, granuloma venereum)	<i>Calymatobacterium granulomatis</i>	Incubation period: 1–4 wk after exposure but symptoms may be delayed for 3–6 mo; painless or mildly painful papules or nodules that may bleed; extragenital lesions may be present due to autoinoculation or dissemination on the skin, bones, intra-abdominal, and/or oral cavities	Donovan bodies on Giemsa, Wright, or Leishman staining of tissue smears from active lesions; there are no serologic tests for diagnosis	Oral azithromycin 1 g once weekly or 500 mg daily for at least 3 wk or until all lesions have completely healed; alternative treatments: oral TMP-SMX 160/800 mg twice daily for 3 wk; oral doxycycline 100 mg twice daily for 3 wk; oral ciprofloxacin 750 mg twice daily for 3 wk; oral erythromycin base 500 mg 4 times daily for 3 wk	Differential diagnosis includes carcinoma, amebiasis, tuberculosis, Crohn disease, and pyoderma gangrenosum
Lymphogranuloma venereum (lymphogranuloma inguinale, Durand-Nicolas-Favre disease)	<i>Chlamydia trachomatis</i>	Incubation period: 3–30 d; primary stage: herpetiform lesion on the coronal sulcus in men or posterior vaginal wall in women with lymphangitis, groove sign <sup>a</sup> ; secondary stage: begins after 2–6 wk, inguinal syndrome, unilateral lymphadenopathy with painful erythematous bubo that drains pus and has sinus tracts; anogenital rectal syndrome: proctocolitis, hyperplasia of the intestinal and perirectal lymphatic tissue, incontinence	Serologic detection of antibodies against serovars L1–L3 of <i>C trachomatis</i> , detection DNA sequence specific to chlamydia serovars by PCR	Oral doxycycline 100 mg 2 times daily for 3 wk; pregnant women: oral erythromycin base 500 mg 4 times daily for 3 wk	Differential diagnosis includes chancroid, lymphoma, and catscratch disease; facilitates HIV transmission

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Disease (Synonym[s])	Etiology	Clinical Features	Laboratory Diagnosis	Treatment	Other Features
Syphilis (lues)	<i>T pallidum</i>	<p>Early syphilis: incubation period, 21 d; primary stage: painless papule that ulcerates as a single indolent, round or oval, indurated ulcer; secondary stage: hematogenous and lymphatic dissemination; prodromal symptoms: low-grade fever, malaise, sore throat, adenopathy, weight loss, muscle aches, headache; nonpruritic papulosquamous eruption, pink to violaceous to red-brown lesions; painless mucosal ulcers to large gray plaques in genital areas; condyloma lata in the anogenital region, lymph node enlargement, nonscarring moth-eaten alopecia, split papules at oral commissures, granulomatous nodules and plaques on the trunk and extremities involving the palms and soles; early latent stage: within 1 year of the onset of latency: late latent stage: syphilis (tertiary stage): involvement of the skin, bones (periostitis and osteitis); neurosyphilis: meningitis, endarteritis, ataxia, heart, and great vessels (endarteritis of the proximal aorta); gummas in the liver, brain, heart, skin, and testis</p>	<p>Primary stage: presence of treponemes on dark field microscopy; anticomplolin antibodies can lead to false-positive RPR test and false-positive VDRL test; antibodies to surface proteins to <i>T pallidum</i> in TPHA, MHA-TP, or FTA-ABS; secondary stage: presence of treponemes on dark field microscopy, spirochetes detected in biopsy specimens, positive serologic test for syphilis; latent stage: positive treponemal antibodies without clinical stage; tertiary stage: CSF serology (elevated pressure, protein concentration, and globulin levels; mononuclear pleocytosis)</p>	<p>Primary, secondary, and early latent stage: IM penicillin G 2.4 million U SD; late latent and tertiary stage: IM penicillin G 2.4 million U once weekly for 3 wk; neurosyphilis: IV crystalline penicillin G 24 million U/d for 14 d</p>	<p>Syphilis facilitates HIV transmission; follow-up examinations are recommended at 6 and 12 mo following treatment of early syphilis; late syphilis should be evaluated once every 3 years; for CSF abnormalities, follow-up examination at 3–6 mo following treatment and then every 6 mo until CSF cell counts are normal and VDRL test is negative; evaluation of sexual partners and reporting is mandatory</p>

Abbreviations: SD, single dose; IM, intramuscular; HIV, human immunodeficiency virus; FTA-ABS, fluorescent treponemal antibody absorption test; ELISA, enzyme-linked immunosorbent assay; IV, intravenous; PMN, polymorphonuclear leukocytes; CDC, Centers for Disease Control and Prevention; TMP-SMX, trimethoprim-sulfamethoxazole; PCR, polymerase chain reaction; RPR, rapid plasma reagin; TPHA, *Treponema pallidum* hemagglutination assay; MHA-TP, microhemagglutination assay for *Treponema pallidum* antibodies; CSF, cerebrospinal fluid.

<sup>a</sup>Involvement of both inguinal and femoral lymph nodes and separation by the inguinal ligament.

## Practice Questions

- 1. A 44-year-old woman presents with fever, lymphadenopathy, and headaches. She has noticed a rash on her palms and soles that is not itchy. What is the diagnosis?**
  - a. chancroid
  - b. gonorrhea
  - c. granuloma inguinale
  - d. lymphogranuloma venereum
  - e. secondary syphilis
  
- 2. A 37-year-old man presents with dysuria and purulent discharge. What is the appropriate test for diagnosis?**
  - a. dark field microscopy
  - b. Giemsa staining
  - c. McCoy culture
  - d. porphyrin test (hemin [X factor]) culture
  - e. Thayer-Martin medium
  
- 3. Which disease in the neonate is preventable with silver nitrate drops?**
  - a. chancroid
  - b. gonorrhea
  - c. granuloma inguinale
  - d. lymphogranuloma venereum
  - e. syphilis
  
- 4. A 22-year-old pregnant woman develops a painless indurated ulcer on the vagina. What is the treatment of choice?**
  - a. azithromycin
  - b. ceftriaxone
  - c. doxycycline
  - d. penicillin G
  - e. TMP-SMX
  
- 5. What sexually transmitted disease facilitates the transmission of HIV?**
  - a. chancroid
  - b. gonorrhea
  - c. lymphogranuloma venereum
  - d. syphilis
  - e. all of the above

*Fact sheets and practice questions will be posted monthly.*